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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,818	11/25/2003	Seong Hyun Kim	2013P135	9371

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EXAMINER

QUACH, TUAN N

ART UNIT PAPER NUMBER

2826

DATE MAILED: 05/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/722,818

Applicant(s)

KIM ET AL.

Examiner

Tuan Quach

Art Unit

2826



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/25/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

The replacement sheet of drawing concerning Fig. 1 is acceptable.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

"et al." is omitted for convenient prior art referencing, e.g., Hack for Hack et al.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hack taken with Dodabalapur

Re claim 1, Hack, 4,996,573, teaches a vertical structure thin film transistor comprising a stacked structure of a suitable substrate such as glass substrate 10, a first electrode conductive gate electrode layer 12, a dielectric thin film 14 of gate dielectric layer, a second electrode for source fingers 16, a semiconductor thin film 24, and a third electrode 26; see Fig. 1, column 3 lines 19 to column 4 line 11. Note that regarding the

amended feature concerning the electrode made of metal and divided into a plurality of electrode, such is taught in Hack, wherein the second electrode being divided to several electrode portions spaced apart from each other is also shown in Fig. 2, column 3 lines 41-59. The limitation regarding the electrode made of metal would be met as shown at column 3 lines 60 wherein the material for the electrode 16 includes metallic material such as titanium/tungsten alloys and barrier elements 22 and the interchangeability and the use of metal for the electrode would have been further obvious as evidenced by Dodabalpur 6,215,130, column 5 lines 25-28.

Re claim 2 and 3, the sequential stacking of the first electrode, dielectric thin film the second electrode, and the third electrode on the substrate is shown in Fig. 1. Note that claim 3 is anticipated provided the third electrode, the semiconductor thin film, the second electrode, and dielectric layer are sequentially stacked on the substrate as no order as to which layer is closest to the substrate is required or specified in either claims 2 or 3.

Regarding claim 4, the use of suitable substrate is contemplated and glass as such a suitable substrate material is shown.

Regarding claim 5, the semiconductor thin film being inorganic semiconductor is met as Hack teaches silicon as the semiconductor layer 24.

Note that regarding the recitation of current flowing as delineated in claims 1 lines 3-5, and the recitation regarding the electric field acts on the semiconductor thin film as in claim 7 line 3-4, such limitations would have been inherent in Hack, given that a vertical thin film transistor is obtained including structures of respective layers as

delineated in Hack and that the positioning of the respective layers are as shown, particularly column 3 lines 19-40 (current path between the source and drain), and as shown in Fig. 1, vertical arrows. Additionally, the intended use of the gate for generating of electric field and spacing apart so that the gate field acts on the semiconductor thin film would not be unpatentable over the prior art for the reasons below. Such use of gate field would appear to be shown in Hack, column 3 lines 20-30 and as shown in Fig. 1, and otherwise would have been clearly capable of being performed by the vertical thin film transistor taught therein and the respective spaced apart electrodes 16; particularly given that the structures as delineated are anticipated by Hack as characterized above. Furthermore, the intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). A recitation directed to the manner in which a claimed apparatus is intended to be used does not distinguish the claimed apparatus from the prior art – if the prior art has the capability to so perform. See MPEP 2114 and *Ex parte Masham*, 2 USPQ2d 1647 (1987). The recitation of a new intended use for an old product does not make a claim to that old product patentable. *In re Schreiber*, 44 USPQ2d 1429 (Fed. Cir. 1997).

Regarding claim 6, Hack is applied as above and does not recite the semiconductor material can be organic. Dodabalapur 6,215,130 further teaches the

Art Unit: 2826

semiconductor material in TFT includes inorganic material such as silicon or preferably organic material. See column 5 lines 32-66, column 6 lines 36-43.

It would have been obvious to one skilled in the art in practicing the Hack invention to have employed with inorganic or organic semiconductor material since such materials are well known in the art wherein the use of organic semiconductor materials would permit further reduction in device dimension.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hack taken with Dodabalapur as applied to claims 1-7 above, and further in view of Carey.

Regarding the alternative substrate materials of silicon or plastic, such corresponds to well known suitable alternative substrate materials as evidenced by Carey, 5,817,550, column 7 lines 5-12.

Applicant's arguments filed March 8, 2005 have been fully considered but they are not persuasive.

Applicant primarily argues that Hack teaches metal stripes and not electrode made of metal. Nonetheless, the use of electrode including the metal is shown in Hack wherein metal 20 is shown and further obvious as evidenced by Dodabalpur wherein the use of metal conductors for electrodes are notoriously conventional. It remains that such use of conventional conductive materials such as metal for electrodes would not require inventiveness and would have been obvious as contemplated by Hack and as evidenced by Dodabalpur.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 2826

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Quach whose telephone number is (571) 272-1717. The examiner can normally be reached on M - F from 8:30 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Nathan Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.


Tuan Quach
Primary Examiner